ETHYLENE OXIDE (ETO) IN REGION 6

ISSUE SUMMARY:

Based on the results of the 2014 National Air Toxics Assessment (NATA), released on August 22, 2018, EPA identified areas with elevated levels of risk associated with emissions of ethylene oxide from sterilizing and industrial facilities. Communities near 10 ethylene oxide facilities in the five states making up EPA Region 6 were originally identified with high NATA estimated risks: 5 facilities in Louisiana, 4 facilities in Texas, and 1 facility in New Mexico*. EPA is working with industry, and state, local and tribal air agencies through a two-pronged approach to address ethylene oxide emissions: review regulations and gather current emissions information for technical assessments in conjunction with state lead efforts to perform outreach with adjacent communities.

*The facility in New Mexico has implemented emissions controls and has been removed from the list.

UPCOMING MILESTONES:

- **Commercial Sterilizers:** EPA is working to propose a rule for EtO commercial sterilizers in the coming months. Because nearly one-third of the sterilizers potentially impacted by the rule are small businesses, EPA is required by law to convene a Small Business Advocacy Review Panel. **See Office of Air & Radiation Transition Paper**
- **Miscellaneous Organic Chemical Manufacturing NESHAP (MON):** The MON covers a relatively small segment of chemical manufacturing processes that use EtO in the manufacture of miscellaneous organic products. (EPA has identified at least three other regulated chemical source categories with EtO emissions.) On August 12, 2020, EPA promulgated amendments to the MON to apply stricter emission control technology for process vents, storage tanks, and fugitive components in EtO service.

BACKGROUND:

EtO is used to sterilize equipment and plastic devices, such as certain medical devices, that can't be sterilized with other methods such as steam. It also is used to sterilize spices. In addition, EtO is an intermediate chemical used to make ethylene glycol, which is then used to make everyday products such as antifreeze and recyclable plastic containers and bottles.

EPA is looking closely at EtO because the most recent National Air Toxics Assessment (NATA), from August 2018, shows that some areas could have elevated cancer risks from long-term (i.e., 70 years) inhalation exposure. NATA is a screening-level analysis intended to help EPA and state and local air agencies identify areas where risks may be elevated and areas or pollutants that may warrant closer examination to understand risks to health. NATA is not a comprehensive risk assessment for any location and does not estimate short-term (acute) or intermediate risks. The elevated risks estimated in NATA were driven by an EPA Integrated Risk Information System (IRIS) toxicity value that was updated in 2016. This updated IRIS value is 50 times more potent than the previous value identified in the Agency's 1985 Health Assessment Document.

In August 2018, EPA issued the NATA and identified 25 areas nationwide with elevated levels of risk associated with emissions of ethylene oxide from sterilizing and industrial facilities. Ten facilities were identified in Region 6. EPA determined to take a two-pronged approach to address ethylene oxide emissions: review regulations and gather current emissions information.

On March 31, 2020, the EPA Office of the Inspector General (OIG) issued a Management Alert stating that *Prompt Action Needed to Inform Residents Living Near Ethylene Oxide-Emitting Facilities About Health Concerns and Actions*

to Address Those Concerns. EPA continues its conversations with the OIG to address its concerns and resolve its Management Alert for Ethylene Oxide.

Texas Commission on Environmental Quality developed a revised state ethylene oxide effects screening level (ESL) which was released in May 2020. Texas Commission on Environmental Quality has finalized an ESL value of 0.24 ppb or 0.43 ug/m3 with a 1-in-a-million cancer risk. Texas Commission on Environmental Quality will require companies seeking new source review (NSR) construction permits with ethylene oxide emissions to screen against their ESL value as a part of the air permitting process. In addition, on October 12, 2020, Texas submitted an Administrative Petition for Reconsideration of the MON rule.

Louisiana Department of Environmental Quality sent letters to 30 permitted emitters of EtO requesting that they review their emissions data and explore proactive measures to reduce EtO emissions. In addition, LDEQ met with facilities in November 2018 showing the highest risk according to the recent NATA to discuss controls specific to their industrial processes to reduce the amount of EtO emissions. Louisiana has requested additional information about EPA-approved analytical methodologies that can show concentrations in 0.02 ug/m3 range, when available.

EPA is improving its ability to measure the level of EtO in the ambient air. EPA has added EtO to the pollutants measured at the National Air Toxics Trends Stations and the Urban Air Toxics Monitoring Program networks, and is publicly reporting those data on a regular, rolling basis.

EPA created a web site to post updates on its work to address ethylene oxide at https://www.epa.gov/hazardous-air-pollutants-ethylene-oxide.

KEY EXTERNAL STAKEHOLDERS:

☒ Congress ☒ Industry ☒States ☐ Tribes ☒ Media ☒ Other Federal Agency ATSDR, OIG
☐ NGO ☐ Local Governments ☐ Other (name of stakeholder)

EPA has maintained communication about the Agency's progress with the regulation reviews and with gathering current data on emissions with the Louisiana Department of Environmental Quality and the Texas Commission on Environmental Quality. In turn, both Louisiana and Texas have provided timely updates and information about facility-specific information about emissions and permit requirements.

MOVING FORWARD:

EPA is currently assessing and updating emissions data for technical assessment purposes for the 9 facilities identified with high NATA estimated risks in the Region 6. In October 2020, EPA requested technical information from Texas and Louisiana regarding the ethylene oxide facilities with high NATA risks. EPA is working with the states of Texas and Louisiana to explore appropriate communication tools and assist the states in developing facility/area-specific outreach information. Descriptions of this work will be posted to the Agency's/Regions' Ethylene Oxide website(s) beginning November 2020 and continuing with the future regular quarterly progress reports.

LEAD OFFICE: REGION 6 OTHER KEY OFFICES: OAR/ORD/OSCPP